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(FILE 'HOME' ENTERED AT 07:18:41 ON 03 DEC 2001)

L1 FILE 'REGISTRY' ENTERED AT 07:18:49 ON 03 DEC 2001  
6266 (50<CU AND 19<ZN)/MAC

L2 FILE 'HCA' ENTERED AT 07:19:21 ON 03 DEC 2001  
8252 L1  
L3 201829 (COPPER OR CU) AND (ZINC OR ZN)  
L4 4213 L2 AND L3  
L5 42775 INTERMETALLIC?  
L6 78 L4 AND L5  
SELECT IPC L6 16 25 29 30 31 38 41 54 56  
SELECT PN L6 1-

L7 FILE 'WPIDS' ENTERED AT 08:02:20 ON 03 DEC 2001  
11682 E1-10  
L8 34 E11-144  
L9 11657 L7 NOT L8  
L10 77 L9 AND (COPPER OR CU) AND (ZINC OR ZN) AND INTERMETAL?

AN 1978-69877A [39] WPIDS  
TI Wear resistant **copper** alloy for wrought prods. - contains  
nickel-aluminium, manganese-silicon, nickel-beryllium and/or  
nickel-silicon inter-metallic cpds. in **copper-zinc**  
alloy.  
DC M26  
PA (NISH-N) NIPPON SHINDO KK  
CYC 1  
PI JP 53097927 A 19780826 (197839)\*  
PRAI JP 1977-13209 19770208  
AB JP 53097927 A UPAB: 19930901

Dispersion strengthening type wear resistant **Cu** alloy for  
wrought prod. consists (by wt) of <12% Ni, 55-65% **Cu+Ni**, 1-5%  
Al, 2-4% Mn, 0.5-3% Si, <0.5% Be and the balance of **Zn**. The  
alloy has dispersed in its **Cu-Zn** series mother alloy  
phase  $\geq 2$  **intermetallic** cpds. of Ni-Al, Mn-Si, Ni-Be and Ni-Si  
series.

Multiple effect of the **intermetallic** cpds. dispersed to  
ppt. in the mother phase improves wear resistance impact resistance and  
fatigue strength of the alloy. The Ni having properties analogous to  
**Cu** may be considered replaceable structurally with an equal amt.  
of **Cu**, contributes to strengthen the mother matrix, and forms  
**intermetallic** cpds. with Al, Be, and Si. Less than 12% Ni reduces  
fluidity of the alloy on casting. Limitation of **Cu+Ni** 55-65% is  
to make the alpha or alpha+beta mother phase.

AN 1982-50997E [25] WPIDS  
 TI Dispersion-strengthened brass alloy - includes aluminium, titanium and at least one of iron, nickel and cobalt.  
 DC M26  
 PA (MITV) MITSUBISHI METAL CORP  
 CYC 1  
 PI JP 57076143 A 19820513 (198225)\* 4p  
 JP 59052944 B 19841222 (198504)  
 ADT JP 57076143 A JP 1980-152941 19801030  
 PRAI JP 1980-152941 19801030  
 AB JP 57076143 A UPAB: 19930915

Brass comprises 15-43% **Zn**, 0.5-10% Al, 0.5-6% Mn, 0.1-2% Si, 0.05-2.5% Ti, 0.05-2% Pb, 0.1-4% of one or more of Fe, Ni and Co, and the balance **Cu** and impurities. The brass may also contain 0.05-1% of one or more of Cr, Zr and V.

The brass is useful as a machine part to be operated under a high load condition, e.g. a synchroniser ring or bearing for a car. A known Mn-Si **intermetallic** cpd.-dispersed brass contains dendritic Mn-Si particles which elongate along its rolling direction. As a result, the prod. is likely to have anisotropic properties. This defect is now overcome by the coexistence of Ti and a Fe-gp. metal. The addn. of Ti and the Fe-gp. metal makes the Mn-Si **intermetallic** cpd. particles 'granular'. The **Zn** and Al change the alloy matrix into an alpha or alpha+beta phase. Consequently the alloy is improved in strength, toughness and wear resistance.

In an example, an alloy (18.4% **Zn**, 7.42% Al, 3.01% Mn, 0.81% Si, 0.53% Pb, 0.91% Ti, 2.05% Fe and **Cu**) had a tensile strength of 84.5 kg/sq.mm, an elongation of 12.4% and a low abrasion loss.

AN 1985-119123 [20] WPIDS  
DNC C1985-051612  
TI Shape memory alloy with improved cold workability and strength - consists of **copper**, aluminium, **zinc**, nickel and silicon and/or phosphorus.  
DC M26  
PA (FURU) FURUKAWA ELECTRIC CO LTD  
CYC 1  
PI JP 60059035 A 19850405 (198520)\* 3p  
JP 03006212 B 19910129 (199108)  
ADT JP 60059035 A JP 1983-165737 19830908; JP 03006212 B JP 1983-165737 19830908  
PRAI JP 1983-165737 19830908  
AB JP 60059035 A UPAB: 19930925  
0.01-0.50 wt.% Si and/or P are added to **Cu**-alloy contg.  
0.05-10.0% Al, 9.0-40.0% **Zn**, and 0.30-2.0% Ni deposited fine **intermetallic** cpds. The cold workability is improved.  
USE/ADVANTAGE - The alloy also has excellent shape memory effect and sample prod. had tensile strength of 96-112 kgf/mm<sup>2</sup>.  
In an example 11.7% **Zn**, 8.39% Al, 0.66% Ni, were added to molten **Cu** in the graphite crucible to obtain 180-mm long bars and 150x200x25-mm<sup>3</sup> ingots. Cold workability, tensile strength, and shape memorising ability were tested on the 8-mm dia. bar and 150x8-mm<sup>2</sup> sheet cut. The shape memorisation was complete; no cracks formed at 80% cold working; the tensile strength was 112 kgf/mm<sup>2</sup>.  
0/0

AN 1985-260465 [42] WPIDS  
 DNC C1985-112959  
 TI Wear resistant **copper** alloy - contains **zinc**,  
 aluminium, manganese, iron and silicon.  
 DC M26  
 PA (KOBM) KOBE STEEL LTD  
 CYC 1  
 PI JP 60174843 A 19850909 (198542)\* 4p  
 JP 62057700 B 19871202 (198751)  
 ADT JP 60174843 A JP 1984-31136 19840221; JP 62057700 B JP 1984-37136 19840221  
 PRAI JP 1984-31136 19840221; JP 1984-37136 19840221  
 AB JP 60174843 A UPAB: 19930925  
 Alloy consists by wt. of **Zn** 10-30%, Al 5-10%, Mn 0.5-5%, Fe  
 0.5-5%, Si 1-6%, and the balance **Cu** with incidental impurities.  
 It includes Fe-Mn-Si ternary cpd. 1-12% with weight ratio Fe/Si and Mn/Si  
 0.3-14 respectively.  
 USE/ADVANTAGE - Synchronizer ring in automobile transmission  
 mechanism used in severe sliding conditions. The Mn and Fe form not only  
 Mn<sub>5</sub>Si<sub>3</sub> and Fe<sub>3</sub>Si but also Fe-Mn-Si **intermetallic** cpds. to  
 increase wear resistance of **copper** alloy more than the case of  
 MnSi<sub>3</sub>. As compared with conventional alloy including Ti, Cr, Co, Zr, V,  
 etc., the new alloy is competitive in wear resistance and improved in  
 castability. **Zn** and Al restrict fuming of molten **copper**  
 and pptn. of gamma-phase.  
 0/2

AN 1992-053806 [07] WPIDS

DNC C1992-024281

TI **Copper**-based sintered alloy with good wear resistance at high temps. - includes **zinc** in the alloy, with molybdenum-silicon **intermetallic** cpd., particles dispersed in it with specific void vol..

DC M22

PA (MITV) MITSUBISHI MATERIALS CORP

CYC 1

PI JP 04000340 A 19920106 (199207)\*

PRAI JP 1990-100117 19900416

AB JP 04000340 A UPAB: 19931006

The alloy has a structure in which 1-15 vol.% Mo-Si **intermetallic** cpd. particles of 1-50 micron-mean particle size are uniformly dispersed, and 1-15 vol.% voids are distributed in the matrix of a **Cu** alloy comprising 10-40 wt.% **Zn** with balance **Cu** and incidental impurities.

USE - Used for valve guide members of internal combustion engines and bearing members of turbochargers.

0/1

AN 90:11051 HCA  
 TI Abrasion-resistant **copper** alloys  
 IN Takeuchi, Isao; Iwamura, Takuro; Kishida, Kunio; Komori, Shinichi;  
 Shimizu, Eiji  
 PA Mitsubishi Metal Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 53100913	A2	19780902	JP 1977-15474	19770217
	JP 58031381	B4	19830705		
AB	The alloys contain Fe 1.5-7.5, Ti 1.0-5.0, Al 2.0-13.8%, and optionally <b>Zn</b> in amts. such that <b>Zn</b> + 4Al = 40.0-56.0%. They have excellent abrasion resistance, and toughness, and machinability due to pptn.-hardening by <b>intermetallic</b> compds. .ltoreq.10 .mu. in diam. When the alloys were homogenized at 650.degree. for 2 h and air-cooled, the tensile strengths were 64.4-79.5 kg/mm2 and elongations 4.0-25.1%. The abrasion was less at low speed.				

AN 116:240185 HCA  
TI Wear-resistant **copper** alloys  
IN Ueno, Hirochika  
PA Mitsuibishi Materials Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 04013825	A2	19920117	JP 1990-113119	19900507
	JP 2745774	B2	19980428		

AB The **Cu** alloys contg. **Zn** 28-33, **Al** 4-5.5, **Ni** 2-3, **Ti** 1-2, and **C** 0.01-0.2% have structures of C-contg. **intermetallic** compds. minutely dispersed in matrixes. The **Cu** alloys are useful for structural members for vehicles, e.g. automobiles.



AN 120:60311 HCA  
TI Free-cutting brass  
IN Yamaji, Kenkichi; Kawanishi, Rokuro  
PA Hitachi Alloy, Ltd., Japan  
SO Eur. Pat. Appl., 20 pp.  
CODEN: EPXXDW  
DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 560590	A2	19930915	EP 1993-301814	19930310
	EP 560590	A3	19940202		
	R: DE, ES, FR, GB, IT				
	JP 05255778	A2	19931005	JP 1992-86463	19920310
PRAI	JP 1992-86463		19920310		

AB The free-machining brass contains (1) Bi, mischmetal, and no Pb (2) Bi, mischmetal, and min. amt. of Pb. Restricting the Pb content decreases subsequent water pollution. Also, the Bi and Pb **intermetallic** compds. formed with mischmetal are uniformly dispersed. The brass compns. are **Cu** 57-61, Bi 0.5-4.0, mischmetal 0.05-0.9, and balance **Zn**, or **Cu** 57-61, (Bi + Pb) 0.5-4.0, mischmetal 0.05-0.5%, and balance **Zn**.

AN 116:9959 HCA  
TI Sintered **copper-zinc** alloys with wear resistance at  
high temperatures  
IN Akutsu, Hidetoshi; Kono, Toru; Otsuki, Masato  
PA Mitsubishi Metal Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03036226	A2	19910215	JP 1989-171488	19890703
	JP 2745695	B2	19980428		

AB The **Cu** alloys suitable for engine parts contain **Zn**  
5-25, Fe, Ni, and/or Co 0.1-3, O 0.01-0.5, and optionally Al 0.1-0.8, Mn  
0.1-3, and/or Co, Mo, and/or W 0.1-2 wt.%. The microstructure includes  
fine oxides and **intermetallic** compds. dispersed in the alloy  
matrix having porosity of 1-15 vol.%. Thus, a sintered rod of **Cu**  
-20 **Zn**-0.1 Al-0.5 Fe-0.1 wt.% O alloy with the porosity of 5  
vol.% showed wear loss of 43 .mu.m in a sliding test on steel, compared  
with 65 .mu.m for **Cu**-20 **Zn**-2.0 Ni-0.25 wt.% O alloy.

AN 116:9960 HCA  
TI Sintered **copper** alloys with wear resistance at high temperatures  
IN Akutsu, Hidetoshi; Kono, Toru; Otsuki, Masato  
PA Mitsubishi Metal Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03036227	A2	19910215	JP 1989-171489	19890703
	JP 2745696	B2	19980428		

AB The **Cu**-base sintered alloys suitable for engine parts contain **Zn** 5-25, Si 0.1-2, Fe, Ni, and/or Co 0.1-3, O 0.01-0.5, and optionally Al 0.1-0.3 and/or Cr, Mo, and/or W 0.1-2 wt.%. The microstructure includes oxides and **intermetallic** compds. uniformly dispersed in the matrix having porosity of 1-15 vol.%. Thus, a sintered rod of **Cu**-10 **Zn**-0.4 Si-1.5 Fe-0.06 wt.% O alloy with porosity of 6 vol.% showed wear loss of 50 .mu.m in a sliding test a steel counterpart.

AN 116:199166 HCA  
TI **Copper**-based sintered alloy with high wear resistance at high  
temperature for bearings of turbo-chargers and valve guides of engines  
IN Teraoka, Toshio; Akutsu, Hidetoshi; Shimizu, Teruo  
PA Mitsubishi Materials Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 04000341	A2	19920106	JP 1990-100118	19900416
AB	The title <b>Cu</b> -based sintered alloy consists of a 10-40 wt.% <b>Zn</b> -contg. <b>Cu</b> alloy matrix and 1-15 vol.% of W-Si-based <b>intermetallic</b> compd. particles having 1-50 .mu.m av. particle size and dispersed uniformly in the matrix, and 1-15 vol.% of pores are distributed uniformly in the structure. The W-Si-type <b>intermetallic</b> compd. may be WFeSi, WNiSi, and/or WCoSi. The alloy is esp. useful for valve guides of high output internal combustion engines owing to thermal cond., burning resistance, and high wear resistance.				